REMARKS

The subject invention relates to a temperature control system for a laser and is particularly useful with excimer lasers. After reviewing the Office Action, applicants have cancelled original claims 1 to 22 and have substituted new claims 23 to 29 therefor. Independent claims 23 and 26 relate to the subject matter embodied in original dependent claims 4 and 5 and 14 and 15 respectively.

In accordance with the new claims, the temperature of the laser is controlled by monitoring both the temperature of the gas in the discharge chamber and the temperature of the discharge chamber body. This information is supplied to a controller which controls the flow of cooling fluid through the heat exchanger. In a preferred embodiment, the temperature of the cooling fluid is also monitored and used to control the fluid flow.

In the Office Action, the Examiner rejected the claims based on the patent to Ujazdowksi (6,034,978) either alone or together with the patent to Partlo (6,021,150). As noted by the Examiner, Ujazdowksi teaches the use of a temperature sensor positioned to measure the temperature of the gas in the chamber. Ujazdowski fails to teach the use of a second sensor for measuring the temperature of the chamber body.

The patent to Partlo includes a Figure 3 substantially similar to Figure 3 of Ujazdowski showing a temperature sensor 330 for measuring the temperature of the lasing gas inside the discharge chamber. Partlo also includes a Figure 6 which shows two temperature sensors, sensor 330 for measuring the gas temperature and sensor 600 for measuring the wall chamber temperature. The structure shown in Figure 6 was built to compare laser operation using one or the other of the two sensors. The results of the comparison are shown in Figures 4, 5 and 7 and 8.

As set forth in Partlo, beginning at column 8, line 37, the laser of Figure 6 was operated in two different modes. In one mode, the fluid flow was controlled based on measurements made by the wall temperature sensor 600. In a second mode, the fluid flow was controlled based on measurements made by the gas temperature sensor 330.

Figure 4 plots measurements made by the wall temperature sensor. Line A shows wall temperature variations when the wall sensor was used to control the cooling fluid flow (first mode). Line B shows wall temperature variations when the gas temperature sensor is used to control the fluid flow (second mode). Figure 4 was intended to demonstrate that the temperature

of the wall will vary less if the flow of cooling fluid is controlled through feedback from the gas temperature sensor.

Figure 5 plots measurements made by the gas temperature sensor. Line A shows the gas temperature variations when the wall sensor is used to control cooling fluid flow (first mode). Line B shows gas temperature variations when the gas temperature sensor is used to control the fluid flow (second mode). Figure 5 shows that the gas temperature also has less variation when the fluid flow is controlled through feedback from the gas temperature sensor. Figures 7 and 8 were included to demonstrate better control of laser operating parameters (e.g. laser energy) when the gas temperature sensor is used to control fluid flow.

Although Partlo **compares** the operation of these two types of sensors, he never hints or suggests that it might be beneficial to use the outputs from **both** sensors to control fluid flow. As noted above, the operating modes Partlo describes rely on **only one sensor at a time**. Further, all of the discussion and drawings are intended to convince the reader that the gas temperature sensor is better and should be used **instead of** the wall temperature sensor.

Applicants believe that optimal performance can be achieved if the cooling fluid is controlled in response to the temperature measurements of **both** the body of the discharge chamber and the internal lasing gas. New claims 23 and 26 are directed to this concept which is not taught or suggested by the prior art. Accordingly, it is believed these claims define patentable subject matter and allowance thereof is respectfully requested.

In the Office Action, the Examiner cited the patent to Rowley (4,987,574) for its teaching of a foil heating element. The patent to Meirer (5,617,440) was cited for its teaching of a metallic housing serving as an oven for setting the temperature of the laser tube. The teachings of Rowley and Meirer fail to overcome the deficiencies of the primary references in anticipating or rendering obvious applicants' invention which requires obtaining temperature measurements from both the gas within the discharge chamber and the discharge chamber body and using both of the those measurements to control the flow of cooling liquid to the heat exchanger.

Based on the above, it is believed that the case in now in condition for allowance and early action is respectfully requested.

Respectfully submitted,

STALLMAN & POLLOCK LLP

Dated: May 16, 2006

By: _____

Michael A. Stallman
Reg. No. 29,444

Attorneys for Applicant(s)